

**IN THE CLAIMS:**

- 1-27. (cancelled)
28. (original) A method for detecting a plurality of CFTR alleles, comprising:
- a) providing a sample comprising CFTR target nucleic acid;
  - b) amplifying said CFTR target nucleic acid with 25 cycles or fewer of a polymerase chain reaction to generate amplified target nucleic acid; and
  - c) exposing said amplified target nucleic acid to a plurality of detection assays configured to detect a plurality of CFTR alleles under conditions such that the presence or absence of said CFTR alleles is detected.
29. (original) The method of Claim 28, wherein said plurality of CFTR alleles comprise twenty or more different CFTR alleles.
30. (original) The method of Claim 28, wherein said plurality of CFTR alleles comprise thirty or more different CFTR alleles.
31. (original) The method of Claim 28, wherein said polymerase chain reaction is conducted for 20 cycles or less.
32. (original) The method of Claim 28, wherein said polymerase chain reaction is conducted for 17 cycles or fewer.
33. (original) The method of Claim 28, wherein said amplifying is conducted within a single reaction vessel.
34. (original) The method of Claim 28, wherein said amplifying and exposing are conducted simultaneously.
35. (original) The method of Claim 28, wherein said detection assays comprise invasive cleavage assays.

36. (new) The method of Claim 28, wherein said sample comprises a blood sample.
37. (new) A method for detecting a plurality of CFTR alleles in a single reaction vessel, comprising:
- a) providing a sample comprising CFTR target nucleic acid;
  - b) amplifying, in a single reaction vessel, said CFTR target nucleic acid with multiple cycles a polymerase chain reaction to generate amplified target nucleic acid; and
  - c) exposing said amplified target nucleic acid, in said single reaction vessel, to at least twenty detection assays configured to detect at least twenty different CFTR alleles under conditions such that the presence or absence of said at least twenty different CFTR alleles is detected.
38. (new) The method of Claim 37, wherein said at least twenty CFTR alleles comprises thirty or more different CFTR alleles.
39. (new) The method of Claim 37, wherein said polymerase chain reaction is conducted for 25 cycles or less.
40. (new) The method of Claim 37, wherein said polymerase chain reaction is conducted for 20 cycles or fewer.
41. (new) The method of Claim 37, wherein said amplifying and exposing are conducted simultaneously.
42. (new) The method of Claim 37, wherein said detection assays comprise invasive cleavage assays.
43. (new) The method of Claim 37, wherein said sample comprises a blood sample.

44. (new) A method for detecting a plurality of CFTR alleles in a single reaction vessel, comprising:

- a) providing a sample comprising CFTR target nucleic acid;
- b) amplifying, in a single reaction vessel, said CFTR target nucleic acid with 25 cycles or fewer of a polymerase chain reaction to generate amplified target nucleic acid; and
- c) exposing said amplified target nucleic acid, in said single reaction vessel, to at least twenty detection assays configured to detect at least twenty different CFTR alleles under conditions such that the presence or absence of said at least twenty different CFTR alleles is detected.

45. (new) The method of Claim 44, wherein said amplifying and exposing are conducted simultaneously.

46. (new) The method of Claim 44, wherein said detection assays comprise invasive cleavage assays.

47. (new) The method of Claim 44, wherein said sample comprises a blood sample.